

WHAT IS CLAIMED IS:

1. A method for deploying and retaining a distal portion of a catheter within a biological conduit with a central axis of the distal portion of the catheter at a desired non-zero angle relative to a central axis of the conduit, the method comprising the steps of:

- (a) introducing the catheter into the biological conduit;
- (b) employing a steering mechanism at least temporarily associated with the distal portion of the catheter so as to deflect the distal portion of the catheter so that the central axis of the distal portion lies substantially at the desired non-zero angle relative to the central axis of the biological conduit; and
- (c) actuating an anchoring mechanism at least temporarily associated with the distal portion of the catheter, the anchoring mechanism including at least one expandable element configured to grip internal surfaces of the biological conduit in such a manner as to retain the distal portion of the catheter at the desired angle within the biological conduit.

2. The method of claim 1, wherein the anchoring mechanism initially assumes a collapsed state having a first maximum diameter no more than 20 percent greater than an outer diameter of the distal portion of the catheter, the anchoring mechanism being expandable to an anchoring state in which the anchoring mechanism provides a plurality of contact regions disposed substantially on an ellipsoid profile so as to anchor the distal portion of the catheter within the biological conduit with the device axis at any desired angle within a pre-defined range of angles relative to the central axis of the conduit.

3. The method of claim 2, wherein the anchoring state of the anchoring mechanism exhibits a maximum radial dimension, and wherein a distance from a distal end of the distal portion of the catheter to the anchoring mechanism is no greater than the maximum radial dimension.

4. The method of claim 3, wherein the maximum radial dimension of the anchoring state of the anchoring mechanism is greater than the first maximum diameter in the collapsed state of the anchoring mechanism.

5. The method of claim 1, wherein the steering mechanism is implemented as part of a guide element removably deployed within the catheter.

6. The method of claim 5, wherein the guide element further includes a position sensor element forming part of a position measuring system for monitoring the position and attitude of the distal portion of the catheter within the biological conduit.

7. The method of claim 1, wherein the anchoring mechanism includes an inflatable element, the catheter including at least one lumen deployed for introduction of a filler material into the inflatable element.

8. The method of claim 7, wherein the inflatable element includes a first compartment for receiving a fluid therapeutic substance, the first compartment being in fluid communication with a dispensing arrangement.

9. The method of claim 8, wherein the inflatable element further includes a second compartment for receiving an osmotic solution, the second compartment having at least one water permeable region.

10. The method of claim 8, wherein the dispensing arrangement includes a cannula deployable so as to project substantially parallel to the device axis beyond the distal portion of the catheter, the cannula having an inlet in fluid communication with the first compartment.

11. The method of claim 7, wherein the inflatable element is formed with a plurality of axial channels for allowing fluid flow along the biological conduit when in the anchoring state.

12. The method of claim 7, wherein the inflatable element is formed with a plurality of external channels such that the inflatable element includes a plurality of lobes, thereby allowing fluid flow along the biological conduit between the lobes when in the anchoring state.

13. The method of claim 2, wherein the anchoring mechanism includes a mechanical anchoring mechanism for deploying the plurality of contact regions from the collapsed state to the substantially ellipsoid profile.

14. The method of claim 1, further comprising a carrier arrangement associated with the anchoring mechanism and carrying at least one brachytherapy seed.

15. The method of claim 1, wherein said anchoring mechanism is configured to define a predefined non-zero angle between the distal portion of the catheter and the central axis of the biological conduit.

16. An anchorable device for deployment within a biological conduit at any desired angle within a pre-defined range of angles relative to a central axis of the conduit, the device comprising:

- (a) a catheter arrangement including a catheter and a steering mechanism for deflecting a distal portion of said catheter, said distal portion of said catheter having an outer diameter and defining a device axis; and
- (b) an anchoring mechanism at least temporarily associated with said distal portion of said catheter, said anchoring mechanism including at least one expandable element which initially assumes a collapsed state having a first maximum diameter no more than 20 percent greater than said outer

diameter of said distal portion and which is expandable to an anchoring state in which said anchoring mechanism provides a plurality of contact regions disposed substantially on an ellipsoid profile so as to anchor the distal portion of said catheter within the biological conduit with said device axis at any desired angle within a pre-defined range of angles relative to a central axis of the conduit,

wherein said anchoring state of said anchoring mechanism exhibits a maximum radial dimension, and wherein a distance from a distal end of said distal portion of said catheter to said anchoring mechanism is no greater than said maximum radial dimension.

17. The device of claim 16, wherein said steering mechanism is implemented as part of a guide element removably deployable within said catheter.

18. The device of claim 17, wherein said guide element further includes a position sensor element forming part of a position measuring system for monitoring the position and attitude of said distal portion of said catheter within said biological conduit.

19. The device of claim 16, wherein said maximum radial dimension of said anchoring state of said anchoring mechanism is greater than said first maximum diameter in said collapsed state of said anchoring mechanism.

20. The device of claim 16, wherein said anchoring mechanism includes an inflatable element, said catheter arrangement defining at least one lumen deployed for introduction of a filler material into said inflatable element.

21. The device of claim 20, wherein said inflatable element includes a first compartment for receiving a fluid therapeutic substance, said first compartment being in fluid communication with a dispensing arrangement.

22. The device of claim 21, wherein said inflatable element further includes a second compartment for receiving an osmotic solution, said second compartment having at least one water permeable region.

23. The device of claim 21, wherein said dispensing arrangement includes a cannula deployable so as to project substantially parallel to said device axis beyond said distal portion of said catheter, said cannula having an inlet in fluid communication with said first compartment.

24. The device of claim 20, wherein said inflatable element is formed with a plurality of axial channels for allowing fluid flow along the biological conduit when in said anchoring state.

25. The device of claim 20, wherein said inflatable element is formed with a plurality of external channels such that said inflatable element includes a plurality of lobes, thereby allowing fluid flow along the biological conduit between said lobes when in said anchoring state.

26. The device of claim 16, wherein said anchoring mechanism includes a mechanical anchoring mechanism for deploying said plurality of contact regions from said collapsed state to said substantially ellipsoid profile.

27. The device of claim 16, further comprising a carrier arrangement associated with said anchoring mechanism and carrying at least one brachytherapy seed.

28. A drug delivery device for deployment within a biological conduit and for delivering a drug into tissue adjacent to the biological conduit, the device comprising:

- (a) a first compartment for receiving a fluid therapeutic substance;

- (b) a cannula deployable so as to project from the device, said cannula having an inlet in fluid communication with said first compartment;
- (c) a second compartment for receiving an osmotic solution, the second compartment having at least one water permeable region; and

wherein said first compartment and said second compartment share a common displaceable wall such that absorption of water by said osmotic solution causes displacement of said displaceable wall so as to expel said fluid therapeutic substance from said first compartment along said cannula into the tissue.

29. The drug delivery device of claim 28, wherein said first and second compartments make up at least part of an inflatable anchoring device configured for retaining the device against walls of the biological conduit with said cannula projecting in a direction non-parallel to a central axis of the biological conduit.

30. The drug delivery device of claim 29, wherein said inflatable anchoring device assumes an anchoring state in which a plurality of contact regions are disposed substantially on an ellipsoid profile so as to anchor the drug delivery device within the biological conduit with said cannula projecting at any desired angle within a pre-defined range of angles relative to the central axis of the biological conduit.